May 2005
Army Industrial Hygiene News and Regulatory Summary

This information is published by the Industrial Hygiene and Medical Safety Management (IHMSM) for the U.S. Army Center for Health Promotion and Preventive Medicine as a service to the Army Industrial Hygiene Program, Federal agencies, and industrial hygienist throughout the Federal and private sector

Table of Contents

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DOHS MONTHLY TOPIC

Topic: Nanotechnology
Title: "What is nanotechnology?"
Summary: Nanotechnology involves the manipulation of matter at nanometer length (one-billionth of a meter) scales to produce new materials, structures and devices. The U.S. National Nanotechnology Initiative (NNI) defines a technology as nanotechnology only if it involves all of the following:

- Research and technology development involving structures with at least one dimension in approximately the 1-100 nanometer range, frequently with atomic/molecular precision.
- Creating and using structures, devices and systems that have novel properties and functions because of their nanometer scale dimensions.
- Ability to control or manipulate on the atomic scale.

An increasing number of products and materials are becoming commercially available. These include nanoscale powders, solutions and suspensions of nanoscale materials as well as composite materials and devices having a nanostructure. Nanoscale titanium dioxide for instance is finding uses in cosmetics, sun block creams and self-cleanng windows, and nanoscale silica is being used as a filler in a range of products, including dental fillings. Recently, a number of new or "improved" consumer products uing nanotechnology have entered the market (such as stain and wrinkle-free fabrics incorporating "nanowhiskers" and longer-lasting tennis balls using butyl-rubber/nanoclay composites). Nano-coatings and nano-composites are being used in a wide range of consumer products from bicycles to automobiles. Further details on existing products can be found at www.nano.gov/html/facts/appsprod.html

In the U.S., an estimated 2 million people work with nanometer-diameter particles on a regular basis in development, production, and use of nanomaterials or products (based on year 2000 national industry-specific occupational employment estimates by the U.S. Department of Labor's Bureau of Labor Statistics). If growth in nanotechnology-related industries meets expectations, a similar number of additional workers will be required globally. Nanomaterials that can be inhaled, ingested or that can penetrate the skin will likely raise questions of potential health effects. Processes that lead to airborne nanometer-diameter particles, respirable nanostructured particles (typically smaller than 4 micrometers) and respirable droplets of nanomaterial suspensions, solutions and slurries are of particular concern for potential inhalation exposures.

NIOSH is conducting research on nanotechnology and occupational health within the scope of its mission to help answer questions that are critical for supporting the responsible development of nanotechnology and for advancing U.S. leadership in the competitive global market. These questions include: Are workers exposed to nanomaterials in the manufacture and use of nanomaterials, and if so what are the characteristics and levels of exposures? Are there potential adverse health effects of working with nanomaterials? What work practices, personal protective equipment, and engineering controls are available, and how effective are they for controlling exposures to nanomaterials? NIOSH is addressing these questions through a program of multi-disciplinary research, communication, and partnership with other agencies, organizations, and stakeholders.

Nanotechnology holds great promise for society, and occupational safety and health is no exception. Engineered nanomaterials may support the development of high performance filter media, respirators, coatings in non-soiling/dust-repellant/self-cleaning clothes, fillers for noise absorption materials, fire retardants, protective screens for prevention of roof falls and curtains for ventilation control in mines, catalysts for emissions reduction, and clean-up of pollutants and hazardous substances. The original article also addresses the effects nanomaterials have on workers' health, should workplace exposures to nanomaterials be measured and controlled. More information on the NNI is available at www.nano.gov and a ACS
http://pubs.acs.org/cen/nanofocus
Source: NIOSH
http://www.cdc.gov/niosh/topics/nanotech/faq.html#a
Date: May 2005

DOD Ergonomic Working Group

Source: http://ergoworkinggroup.org/ewgweb/IndexFrames/index3.htm

Industrial Hygiene Career Program Issues

CP-12 Program Overview
Source:
https://crc.army.mil/Training/detail.asp?iData=27&iCat=487&iChannel=16&nChannel=Training

CP-12 Training Schedule 2005
Source:
https://crc.army.mil/Training/detail.asp?iData=40&iCat=518&iChannel=16&nChannel=Training

DEPLOYMENT NEWS

Unmanned Detection of Weapons of Mass Destruction
Title: "CUGR"
Summary: The Chemical, Biological, Radiation and Nuclear Unmanned Ground Vehicle Advanced Concept Technology Demonstration (CUTR ACTD) Program is moving forward on several efforts to modify the HMMWV version of the Joint Service Lightweight NBC Reconnaissance System (JSLNBCRS) vehicle. They plan to add a remote detection capability to the vehicle and change the detector suite. Integrating mature off-the-shelf technologies to unmanned detection systems will shorten the system delivery time to the soldier and reduce personal risk in potentially WMD-contaminated environments. The military developers have found adequate commercial technologies for detection and identification of radiation, chemical warfare agents and toxic industrial chemicals. However, biological detection techniques lag behind.
Source: Military Medicine/NBC Technology
Date: Volume 9, Issue May 3, 2005
Pages: 14-17

ASSISTANT SECRETARY OF THE ARMY

ASA (Installation & Environment)/Environment, Safety, and Occupational Health
Title: "Sustain the Mission - Secure the Future"
Summary: The ASA (I&E)/ESOH published the Army Strategy for the Environment. Goals include:

- Foster a Sustainability Ethic
- Strengthen Army Operations
- Meet Test, Training, and Mission Requirements
- Minimize Impacts and Total Ownership Costs
- Enhance Well-Being
- Drive Innovation

Source: https://www.asaie.army.mil/Public/ESOH/1ESOH_default.html

KEY INDUSTRIAL HYGIENE TOPICS

MOLD/INDOOR AIR QUALITY

Mold Studies
Title: "Establishing Site Specific Reference Levels for Fungi in Outdoor Air for Building Evaluation"
Summary: Researchers found that levels of Penicillium, Aspergillus, or other fungal species associated with problematic buildings if detected outdoors, can be significantly greater in the morning or afternoon (or exhibit no significant difference) on any given day. The data does not indicate laboratory analysis as a major contributor to the variability exhibited in bio-aerosols, and underscores the necessity of collecting sufficient number of samples in the outdoor air in both the morning and afternoon to prevent bias when comparing a suspect indoor environment to outdoor conditions.
Source: Journal of Occupational and Environmental Hygiene, Volume 2, Number 5
Date: May 2005
Pages: 257 - 266

Mold Investigation

Title: "I Think It's Mold! (Now What?)"

Summary: Practical advice for mold investigation and remediation.

- Look for mold around pipes; drains; windows; in dark, damp areas; and in poorly ventilated areas.
- Listen to employee comments about spills and moisture, and keep track of any patterns of complaints about indoor air quality and allergies.
- Smell the air around you. If it's damp or stale, you could have a significant mold or moisture problem, although it may be hidden just below the surface.

Here are some additional tips for dealing with these problems efficiently and effectively:

- Form a multidisciplinary risk assessment team that includes the facility manager, operations manager, director of maintenance, health and safety director, and others as appropriate.
- Inventory physical and operational areas of risk as cited above (e.g., parts of building most susceptible to leaks and flooding). Take into account both internal and external sources of moisture, and give special consideration to environmental hazards.
- Consider partnering with an outside contractor to conduct an extensive risk assessment. In some states, including Oklahoma and Texas, in certain types of buildings, the contractor who performs the risk assessment cannot also do the remediation work. While such rules are in place to protect property owners, they add a level of complexity to the risk assessment and mitigation process.
- Develop moisture-prevention standards and procedures for evaluating risks--including an HVAC maintenance program, procedures for selecting building materials, construction/renovation inspections, and action plans for natural disasters.

Source: Occupational Health and Safety E-News

Date: May 11, 2005

IAQ and Water Damage

Title: "New Study Reveals Indoor Hazard of Water-Damaged Buildings"

Summary: NIOSH scientists and an outside colleague found that water-damaged facilities had a higher prevalence of asthma and other respiratory symptoms than expected. This research introduced more evidence that water damage contributing to mold and other microbial growth can negatively affect employees' respiratory health and business productivity. The study is part of NIOSH's ongoing research program to improve the understanding of indoor environmental quality, prevent building-related illnesses, and provide practical guidance for maintaining healthy buildings. The study, "Respiratory Morbidity in Office Workers in a Water-Damaged Building," was published in the April 2005 issue of the journal Environmental Health Perspectives. It is available online at http://ehp.niehs.nih.gov/members/2005/7559/7559.html More information on indoor environmental quality research at NIOSH is available at http://www.cdc.gov/niosh/topics/indoorenv

Source: NIOSH

http://www.cdc.gov/niosh/enews/enewsV3N1.html#d

Date: May 2005

WELDING

Title: "Welders not at increased risk of neurodegenerative disorders"

Summary: The Welding Information Center announced recently that a new epidemiological study published in the May 2005 issue of the Journal of Occupational and Environmental Medicine concludes that there is no link between welding or exposure to welding fumes and an increased risk of Parkinson's disease or

any other similar neurodegenerative disorder. Titled "A Cohort Study of Parkinson's Disease and Other Neurodegenerative Disorders in Danish Welders," it is the first epidemiological cohort study of Parkinson's disease and other neurodegenerative disorders undertaken among men employed as welders.
Source: Occupational Health and Safety E-News
Date: May 16, 2005

USACHPPM LEAD & ASBESTOS PROGRAM

General Information & Additional Links
Source: http://chppm-www.apgea.army.mil/ihfs/labp.aspx and
http://www.hqda.army.mil/acsimweb/fd/LeadAsbestos/pages/home.htm

HAZARDOUS MATERIALS

Hexavalent Chromium
Title: "New Hex Chrom Study Reignites Disagreement on PEL Level"
Summary: A new study finding hexavalent chromium exposure led to fewer deaths than expected at two chromate production plants has reinvigorated disagreement among industry and consumer advocates over the appropriate permissible exposure limit for the toxic metal. Briefs submitted by industry and a consumer advocacy group following the public hearing on OSHA's hex chrome rulemaking each reference the study, performed by Rose Luippold, Kenneth Mundt, Linda Dell and Thomas Birk. The study was published in the April issue of the Journal of Occupational and Environmental Medicine.
Source: DENIX: "Inside OSHA"
https://www.denix.osd.mil/denix/DOD/News/Pubs/OSHA/02May05/news_osha_02May05.html Note: you will need to establish an account with DENIX to view this article https://www.denix.osd.mil
Date: May 2, 2005

Beryllium
Title: "Small Business Panel on Beryllium Will Likely Start Work In May"
Summary: OSHA anticipates the Small Business Administration (SBA) will convene small business owners to review a draft of OSHA's rule for occupational exposure to beryllium by the end of May, an agency official says. The panel, mandated under the Small Business Regulatory Enforcement Fairness Act (SBREFA), was originally scheduled to start in January, according to the Department of Labor's December unified agenda. The SBA would not comment on why the panel will start late and who is being approached to serve on it. OSHA's permissible exposure limit for beryllium currently is 2 micrograms per cubic meter of air. The old standard dates back to 1949 and has for years been the target of unions and consumer advocates such as Public Citizen. END.
Source: DENIX "Inside OSHA"
https://www.denix.osd.mil/denix/DOD/News/Pubs/OSHA/02May05/05.doc.html
Date: May 2, 2005

Methylene Diphenyl Diisocyanate
Title: "Work-Related Asthma in the Spray-On Truck Bed Lining Industry"
Summary: The objective of this study was to identify work-related asthma (WRA) workers' compensation claims associated with methylene diphenyl diisocyanate (MDI) exposure in the spray-on truck bed lining industry and estimate the asthma incidence rate in this industry. The authors conducted a descriptive study of

workers' compensation claims meeting an established surveillance case definition for WRA.

The results showed eight WRA workers' compensation claims were identified in the truck bed lining industry in Washington State for a claims incidence rate of 200 per 10,000 full-time equivalent. The medical evaluation of the cases was inadequate because none of the truck bed lining cases had medical testing to objectively link their asthma to the workplace.

The conclusion was that the rate of work-related asthma in the truck bed lining industry is excessive and suggests a need for significant intervention, including improvements in the clinical assessment provided to MDI-exposed workers.

Source: Journal of Occupational & Environmental Medicine, Vol 47 No.5
Date: May 2005
Page: 514-517

Perchlorethylene

Title: "Perc Guide Lists 35-Year-Old PEL OSHA Said Was Inadequate in 2001"
Summary: OSHA has issued a non-binding guidance on Reducing Worker Exposures to Perchloroethylene (perc) in Dry Cleaning that references the 35-year-old permissible exposure limit the agency declared back in 2001 to be "inadequately protective," while at the same time noting there are more stringent industry consensus standards. Organized labor blasts the document, saying OSHA is failing to protect hundreds of thousands of workers from daily exposure to the cancer-causing agent. Perc is a commonly used chemical in the dry cleaning industry that OSHA says "can pose serious health hazards" and NIOSH classifies as an occupational carcinogen.
Source: DENIX: "Inside OSHA"
https://www.denix.osd.mil/denix/DOD/News/Pubs/OSHA/02May05/news_osha_02May05.html Note: you will need to establish an account with DENIX to view this article (https://www.denix.osd.mil)
Date: May 2, 2005

Perchlorate Exposure

Title: "EPA Sets Reference Dose for Perchlorate"
Summary: The Environmental Protection Agency (EPA) has established an official reference dose (RfD) of 0.0007 mg/kg/day for perchlorate. This level is consistent with the recommended reference dose included in the National Academy of Science's (NAS) January 2005 report. A reference dose is a scientific estimate of a daily exposure level that is not expected to cause adverse health effects in humans. The EPA's reference dose, which assumes total intake from both water and food sources, is appropriate and protective for all populations, including the most sensitive subgroups. The selected reference dose contains a full ten-fold uncertainty factor to protect the most sensitive population, the fetuses of pregnant women, who might have hypothyroidism or iodide deficiency. This uncertainty factor also covers variability among other human life stages, gender and individual sensitivities, protecting not only adults, but also other sensitive subpopulations such as premature neonates, infants and developing children. Perchlorate exposure has the potential of blocking iodide uptake by the thyroid gland. The NAS identified the nonadverse effect of the inhibition of iodine uptake as the key biochemical event that precedes the occurrence of all potential adverse effects of perchlorate exposure. The EPA's RfD is conservative and health protective because it is designed to prevent the occurrence of any biochemical changes that could lead to adverse health effects.

The EPA's reference dose for perchlorate will be posted on the agency's online IRIS database, which contains risk information on possible human health effects from exposure to chemical substances in the environment. The EPA's new RfD translates to a Drinking Water Equivalent Level (DWEL) of 24.5 ppb.

A Drinking Water Equivalent Level assumes that all of a contaminant comes from drinking water and is the concentration of a contaminant in drinking water that will have no adverse effect within a margin of safety. Because there is a margin of safety built into the RfD and the DWEL, exposures above the DWEL are not necessarily considered unsafe. The EPA's Superfund cleanup program plans to issue perchlorate guidance based on the new RfD. Perchlorate has been used in various items, including missile and rocket propellants, munitions and fireworks, flares, automobile airbags and pharmaceuticals. It may also occur naturally and has been found in some fertilizer. Perchlorate has been detected in drinking water in some systems around the country, as well as in certain foods. The perchlorate summary is available on the IRIS website
http://www.epa.gov/iris
Source: Hazardous Technical Information Services
Date: May 2005
Page: 3

ERGONOMICS

Muscle Strain
Title: "Muscle strain associated with operating three models of fire nozzles and subjective assessment of their ergonomic quality"
Summary: Firefighters are subject to high physical and psychological stress and fire fighting often requires mastering complicated tasks under adverse conditions. In this job, the handling of the hose/nozzle combination is a central and often performed task. The objective of this field study was to ergonomically evaluate different designs of 3 fire nozzles – a multi-purpose nozzle according to a German standard, a pistol nozzle (AWG), and a supposedly ergonomic nozzle (Quadrafog) – with respect to the muscle strain associated with performing standardized working tests
Source: Occupational Ergonomics: The Journal of the International Society for Occupational Ergonomics and Safety
http://search.epnet.com/login.aspx?direct=true&db=aph&an=13359268
Date: 2004
Page: 89

Physiological Measurements
Title: "A computer-based system for the use of electromyographic methods for the measurement of physiological costs associated with operating hand-held tools and computer input devices"
Summary: Electromyography enables the measurement of the intensity of muscle exertions which are demanded when working with hand-held tools and controls as well as when performing repetitive manual movements. Utilizing multi-channel recording devices, comprehensive physiological responses of working muscles can be quantified in figures and numbers, whereby more or less ergonomically designed tools lead to different physiological costs in terms of muscle strain associated with work. A computer-based system was developed for the suitable application of electromyography, a technique which requires differentiated and detailed knowledge of the possibilities and limitations as well as a substantial amount of experience. Software packages provide programs for the recording, analysis, and evaluation of myoelectric data. Knowledge about practical methods of appropriate recording and processing of myoelectric data which has been accumulated and further developed during the last decade has been fed into the program system.
Source: Occupational Ergonomics: The Journal of the International Society for Occupational Ergonomics and Safety
http://search.epnet.com/login.aspx?direct=true&db=aph&an=13359269
Date: 2004
Page: 73

Muscle Strain

Title: "Muscle strain of the hand-arm-shoulder system during typing at conventional and ergonomic keyboards"

Summary: Manufacturers of ergonomic split keyboards promise maximum effectiveness and comfort as well as a reduction of physical complaints. In order to determine the positive effects claimed, a study was carried out during which 10 male subjects (Ss) participated in standardized working tests. They entered text into a PC, alternating using a conventional keyboard and an ergonomic keyboard. Electromyographic activity (EA) of 8 muscle groups was simultaneously recorded during altogether 6 working phases with a duration of 10~min, each. Measurements of the maximum activity, EA_{max}, via maximum voluntary contractions of the 8 muscles – which were necessary for calculating standardized electromyographic activity (sEA) used to represent muscle strain as a percentage – were always taken at the end of the experiment. Muscle strain varied from muscle to muscle but the level of the sEA-values for the different muscles was reproducible and stable. Also, activation of most muscles acting on the shoulder, upper arm, forearm, and the hand showed differences which, though small in amount, could be statistically secured and associated with the keyboard type. The ergonomic design of the tested keyboard led to objectively verifiable and plausible reductions of muscle strain.

Source: Occupational Ergonomics: The journal of the International Society for Occupational Ergonomics and Safety

http://search.epnet.com/login.aspx?direct=true&db=aph&an=13359267

Date: 2004

Page: 105

Lifting Hazards

Title: "Quantifying Lifting Hazards"

Summary: SOFT-TISSUE INJURIES or musculoskeletal disorders (MSDs) associated with manual lifting and awkward, repetitive use of the lower back account for approximately 28 percent of the occupational injuries and illnesses reported each year (BLS). Most safety professionals can readily identify key stressors that cause or aggravate MSDs (e.g., postures, force and repetition). Typically, qualitative methods such as checklists are employed during ergonomic assessments; on occasion, quantitative methods such as the NIOSH lifting equation are used. While checklists help identify risk factors, they fail to provide a rigorous quantitative analysis that is repeatable and scientifically validated. However, the quantitative analytical approach required by the NIOSH equation is time-consuming and intrusive to the work process. This article provides an overview of four quantitative methods for characterizing lifting hazards. Using realistic case studies, the results achieved using three of these methods are compared to results achieved using the NIOSH equation in order to determine how these alternative methods compare to the NIOSH equation when applied to several typical work processes.

Source: Professional Safety http://search.epnet.com/login.aspx?direct=true&db=aph&an=16929881

Date: May 2005

Page: 26

Integration of Ergonomics/Human Factors

Title: "Draft Standard Guide Addresses Integration of Ergonomics/Human Factors into New Occupational Systems"

Summary: The ANSI Z535 Accredited Standards Committee is creating a new standard, ANSI Z535.6, to address the ASTM Committee E34 members for review and is awaiting final approval. The guide is intended to assist in the integration of ergonomic principles into the design and planning of new occupational systems from the earliest design stages through implementation. Integrating ergonomic principles into new Occupational systems may:

- Help businesses to develop processes that do not exceed worker capabilities and limitations.
- Allow jobs and tasks that do not exceed worker capabilities and limitations to be performed more efficiently, safely and consistently, thus helping to avoid system failures and inefficiencies.
- Facilitate appropriate design, layout and allocation of resources during the earliest stages of process concept and design.
- Reduce or eliminate the need for redesign.
- Design jobs that fit the capabilities of larger population segments, which may increase an organization's accessibility to the available labor pool.
- Increase profits by lowering direct and indirect costs associated with preventable losses, injuries and illnesses.

See original article for a more extensive look at the benefits of the draft standard.
Source: Professional Safety
Date: May 2005
Page: 43

PERSONAL PROTECTIVE EQUIPMENT

Gloves

Title: "Reducing Hand Injuries Goes Beyond Putting on Gloves"
Summary: Recent reports indicate that more than 25% of all workplace accidents involve hand and finger injuries – with each disabling hand injury costing as much as $26,000. As a first step in reducing hand injuries, companies should thoroughly assess their operations and examine glove usage throughout their facilities to determine potential opportunities for improvement.
Source: Occupational Hazards
Occupational Hazards http://search.epnet.com/login.aspx?direct=true&db=f5h&an=16920022
Date: April 2005
Page: 46

Chemical Protective Clothing

Title: "Fortifying the Last Line of Defense"
Summary: By learning more about chemical protective clothing selection, users can better protect themselves against chemical exposure and flashfire hazards
By James Zeigler, PhD, and Susan Lovasic

This article addresses what factors you should consider when faced with the dual hazards of chemical exposure and flash fire (Chemical Barrier Protection and Thermal Barrier Clothing). Fabric, seam, and garment design combine to provide chemical protection. And the choice of fabric, seam, and garment style starts with an assessment of the chemical-exposure hazard. The design of the garment must match the likelihood, level, and length of exposure.
Thermal barrier and "Flame Resistant" are not synonymous.
NFPA 2112, "Standard on Flame-Resistant Garments for Protection of Industrial Personnel against Flash Fire," does not rely upon a single FR criterion. The standard requires that a series of criteria must be met by the garment to qualify as a flash-fire protective garment -- vertical flammability, thermal shrinkage and heat resistance, thermal protective performance, and overall flash-fire protective performance.
Source: Environmental Protection, Vol. 16, No. 3.
Date: April 2005

Clothing Selection

Title: "WBGT Clothing Adjustments for Four Clothing Ensembles Under Three Relative Humidity Levels"
Summary: Threshold limit values for heat stress and strain are based on an upper limit wet bulb globe temperature (WBGT) for ordinary work clothes, with clothing adjustment factors (CAF) for other clothing ensembles. The purpose of this study was to determine the CAF for four clothing ensembles (Cotton Coveralls, Tyvek®; 1424 Coveralls, NexGen®; Coveralls, and Tychem QC®; Coveralls) against a baseline of cotton work clothes and to determine what effect relative humidity may have. A climatic chamber was used to slowly increase the level of heat stress by increasing air temperature at three levels of relative humidity (20%, 50%, and 70%). Study participants wore one of the five ensembles while walking on a treadmill at a moderate metabolic rate of 155 W m -2 (about 300 W). Physiological data and environmental data were collected. When the participant's core temperature reached a steady state, the dry bulb temperature was increased at constant relative humidity. The point at which the core temperature began to increase was defined as the inflection point. The environmental temperature recorded 5 min before the inflection point was used to calculate the critical WBGT for each ensemble. A three-way analysis of variance with ensemble by humidity protocol interactions and a multiple comparison test were used to make comparisons among the mean values. Only the vapor-barrier ensemble (Tychem QC) demonstrated an interaction with humidity level. The following CAFs are proposed: Cotton Coveralls (0°C–WBGT), Tyvek 1424 Coveralls (+1), NexGen Coveralls (+2), and Tychem QC Coveralls (+10).
Source: Journal of Occupational & Environmental Hygiene
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16606883
Date: May 2005, Vol. 2 Issue 5
Page: 251

RESPIRATORY PROTECTION PROGRAM

Title: "A Survey of Private Sector Respirator Use in the United States: An Overview of Findings"
Summary: NIOSH conducted a 2001 Survey of Private Sector Respirator Use in the United States and found that respirator use was required in 4.5% of establishments and for 3.1% of employees. Of the establishments requiring respirator use, 95% used air-purifying respirators and 17% used air-supplied respirators. Manufacturing; mining (including oil and gas extraction); construction; and agriculture, forestry, and fishing had the highest rates of establishment respirator use. Respirators were used most frequently to protect against dust/mist, paint vapors, and solvents. Large percentages of establishments requiring respirator use had indicators of potentially inadequate respirator programs. Of establishments requiring respirator use, 91% had at least one indicator of a potentially inadequate respiratory protection program, while 54% had at least five indicators. The survey findings suggest that large numbers of employers may not follow NIOSH recommendations and Occupational Safety and Health Administration (OSHA) and Mine Safety and Health Administration (MSHA) requirements for the selection and use of respirators, potentially putting workers at risk.
Source: Journal of Occupational and Environmental Hygiene Volume 2, Number 5
Date: May 2005
Pages: 267-276

NOISE

Hearing Conservation in Construction

Title: "The Effectiveness of Hearing Protection among Construction Workers"
Summary: At study conducted by the Department of Environmental and Occupational Health Science at the University of Washington on the effectiveness of hearing protection among construction workers found that

effective hearing conservation programs in the construction industry are rare. Where programs are present, they often rely on workers' use of hearing protection devices (HPDs) rather than on exposure controls to reduce noise exposure levels. The workers assessed in this study were found to use hearing protection less than one-quarter of the time that they were exposed above 85 dBA. The study results demonstrated the need for better hearing conservation programs and expanded noise control efforts in the construction industry.
Source: Journal of Occupational and Environmental Hygiene, Volume 2, Number 4
Date: April 2005
Pages: 227-238

SAMPLING AND ANALYSIS

Field Portable Measurement of Airborne Metals
Title: "Field Portable Measurement of Airborne Beryllium, Chromium, Lead and Other Metals"
Summary: The present standard method for measuring beryllium in air involves sample collection on conventional closed-face cassettes measuring 37 mm in diameter. The sample filters are then sent to a laboratory where they are chemically digested and suspended in solution. The solution is then analyzed by inductively coupled plasma. The ICP method has a low limit of detection and is very accurate. Unfortunately, the laboratory instruments used for this method are far from portable. This article summarizes the status of portable beryllium measuring technologies. Some are in the technology development stage, while some are in the prototype stage. None of the instruments have been validated yet.
Source: The Synergist
Date: April 2005
Pages: 40-44

Equipment Calibration-Gas Monitors
Title: "Don't Hesitate to Calibrate"
Summary: How often are full calibrations needed? The International Safety Equipment Association (ISEA) recommends the following if conditions do no permit daily testing:

- During a period of initial use of at least ten days in the intended atmosphere, calibration is verified daily to ensure there is nothing in the atmosphere to poison the sensor(s). The period of initial use must be of sufficient duration to ensure that the sensors are exposed to all conditions that might adversely affect the sensors.
- If the tests demonstrate that no adjustments are necessary, the interval between checks may be lengthened, but it should not exceed 30 days.

ISEA recommends more frequent testing if environmental conditions that could affect instrument performance are suspected, such as sensor poisons.
Source: Industrial Safety & Hygiene News
Date: May 2005
Pages: 36-38

Portable Gas Monitoring Equipment
Title: "GasID--Portable Gas and Vapor Identifier"
Summary: Smiths Detection, a leading provider of trace detection equipment, is proud to introduce the GasID, a compact portable gas and vapor identifier that uses Fourier Transform Infrared Spectroscopy (FT-IR) to measure how gas and vapor samples interact with infrared light. Each gas has its own unique infrared

fingerprint, which, when analyzed by the GasID is instantly compared against an onboard database to provide the identity of the unknown gas or vapor. Database libraries include Toxic Industrial Chemicals, Chemical Warfare Agents, Volatile Organic Compounds, Flammables, and Non-flammables.
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16573395
Date: April 2005
Page: 62

HOMELAND SECURITY

Public Health Emergencies
Title: "Checklists on Legal Preparedness for Public Health Emergencies"
Summary: Legal preparedness is an integral part of comprehensive preparedness for public health emergencies. To assess existing legal preparedness, state health departments have made extensive use of the draft Model State Emergency Health Powers Act (MSEHPA), researched and written in December 2001 by the Center for Law and the Public's Health at Georgetown and John Hopkins universities in collaboration with the Centers for Disease Control and Prevention (CDC) and other national public health partners. Although MSEHPA has been widely introduced and passed in states, state and local public health agencies need additional tools to assess public health emergency legal preparedness
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16573392
Date: April 2005
Page: 62

National Response Plan
Title: "Department of Homeland Security's National Response Plan"
Summary: The U.S. Department of Homeland Security has announced completion of the National Response Plan, which establishes a unified and standardized approach within the United States for protecting citizens and managing homeland security incidents. All federal departments and agencies that may be required to provide assistance or support during a national incident — whether involving threats or acts of terrorism, major natural disasters, or manmade emergencies — will use this
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16573380
Date: April 2005
Page: 60
Responder Health and Safety Plan
Title: "DHS Asks Agencies To Come Up With 1st Responder Health and Safety Plan"
Summary: The Department of Homeland Security has pegged heath and safety of first responders as one of the "target capabilities" needed to implement a 2003 presidential directive to prepare the nation for a terrorist attack. DHS is giving federal, state and local agencies and the private sector until Oct. 1 to come up with a plan for how they will divvy up responsibilities to ensure the health and safety of first responders.
Source: DENIX: "Inside OSHA"
https://www.denix.osd.mil/denix/DOD/News/Pubs/OSHA/02May05/news_osha_02May05.html
Note: You will need to establish an account with DENIX to view this article (https://www.denix.osd.mil)
Date: May 2, 2005

Title: "Increased Suicide Rate Possibly Linked to Chemicals Released from Nearby Asphalt Plants"
Summary: Exposure to low levels of hydrogen sulfide and possibly other airborne chemicals from nearby asphalt plants may have contributed to an increased suicide rate in a North Carolina community, a study has suggested for the first time.
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16573383
Date: Apr 2005
Page: 60

PREVENTIVE MEDICINE ISSUES

Tattooing Risks
Title: "Tattooing, Body Piercing and Permanent Cosmetics: A Historical and Current View of State Regulations, with Continuing Concerns"
Summary: The popularity of tattooing, body piercing, and permanent cosmetics demands up-to-date state legislation. The objective of this article is to present a historical perspective and nationwide review of current state I regulations for body art. Methods comprised Internet and telephone inquiries to state agencies. It was found that while 36 states have changed their body art legislation since 1998, the overall strength of the regulations varies widely. The author concludes that it is unrealistic, given the amount of body art performed in the United States, to prohibit body art, emphasize only business licensing, or have limited state regulations while local municipalities establish separate policies. Concerns remain about standard precautions, adequate documentation of complications, and lack of uniform regulations. Quality protection will mean taking a more comprehensive approach to effective regulations and enforcement.
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16572740
Date: April 2005
Page: 38

Indoor – Tanning Risks
Title: "Sanitarians' Work with Indoor – Tanning Businesses: Findings from Interviews in Two Major Metropolitan Areas"
Summary: In spite of potential health risks, indoor tanning is a popular practice and a growing industry. Although published studies indicate that tanning businesses' compliance with regulations is poor, no studies describe enforcement activity and the related knowledge and perceptions of environmental health professionals. As part of a larger study of indoor tanning in Minnesota and Massachusetts, both states with statutes that regulate tanning, the investigation reported in this paper involved interviews of 27 sanitarians in the Twin Cities and 30 sanitarians in the Boston metropolitan area about their awareness, experiences, and practices. Overall, Massachusetts performed better than Minnesota with respect to familiarity with regulations (93 percent versus 67 percent), routine business inspections (90 percent of agencies versus 27 percent), and priority given by agencies to indoor-tanning work-differences likely attributable to a stronger state statute. Participants in both states, however, recalled few aspects of the regulations and were able to identify few of the health risks associated with indoor tanning, and most reported receiving inadequate training. Various steps

Back to page 1

must be taken to improve environmental health work with tanning businesses, including educating the public, strengthening regulations, addressing resource issues, and training sanitarians.
Source: Journal of Environmental Health
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16572733
Date: April 2005
Page: 30

Biological Hazards
Title: "Researcher Exposure to Tularemia Bacteria"
Summary: OSHA has completed its investigation of researcher exposure to tularemia bacteria at Boston University and Boston Medical Center, Evans Biomedical Research Center, issuing citations and findings that allege three serious violations of the PPE standard.

The investigation was undertaken after three employees became ill following their exposure to a highly infectious strain of the bacteria during the course of their work. OSHA has issued to Boston University and Boston Medical Center Corporation identical sets of citations alleging three serious violations each of OSHA's personal protective equipment standard, including failure to ensure that all employees wore gloves and eye protection when working with tularemia live vaccine strain (LVS); failure to certify in writing the required workplace hazard assessment for work with tularemia LVS; and failure to retrain employees who were working with tularemia LVS and who were not using gloves and eye protection.
Source: Facility Safety Management
Date: 10 May 2005

Workplace Violence
Title: "Workplace Violence Incidents Have Increased"
Summary: Eighty-two percent of senior executives responsible for human resources and security report the number of workplace violence incidents have increased in the last two years. The results reveal increased outsourcing, downsizing, wage garnishments/salary reductions, perceived insufficient raises/bonuses and overall softening of the economy are contributing to the burgeoning backlash of workplace violence.

Fifty-eight percent of companies report disgruntled employees have threatened to assault or kill senior managers in person or through e-mail in the last 12 months. Additionally, employees are intentionally downloading computer viruses, sexually harassing co-workers and sabotaging the company through malicious product tampering.
Source: Occupational Health and Safety
Date: 9 May 2005

SAFETY ISSUES

Medical Safety
Title: "FDA Warns Consumers About Unapproved Home-Use Diagnostic Kits"
Summary: The article focuses on a warning given by the U.S. Food and Drug Administration (FDA) to the consumers about unapproved home-use diagnostic kits. The use of these products could result in false results that could lead to significant adverse health consequences. The illegal kits are labeled Rapid HIV Test Kit. The kits have been marketed nationwide via the Internet by Globus Media Inc. (Montreal, Canada). Using these kits, consumers cannot know with any degree of certainty that test results are correct. For example, a person testing positive for HIV using one of these tests may not be infected with HIV, or, worse, someone infected with HIV may test negative and not seek medical treatment or spread the virus to others.
Source: Biomedical Safety and Standards
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16725727
Date: 4/15/2005
Page: 53

Medical Safety
Title: "Smart Fabrics Monitor Patient Vital Signs"
Summary: The article informs that the Wearable Health Care System (WEALTHY) Information Society Technologies project, sponsored by the European Union, is targeting both commercial and medical monitoring uses of its smart fabric and interactive textile technologies. According to analysts, the market for interactive fabrics was $300 million in the year 2003 and will approach $1 billion or more by the year 2010. So far, the project has resulted in successful development of a shirt with integrated temperature microsensors in the armpits and shoulders to register core and body surface temperature on a real-time basis.
Source: Biomedical Safety and Standards®
http://search.epnet.com/login.aspx?direct=true&db=aph&an=16725702
Date: 4/15/2005
Page: 49

Safety Apparel
Title: "Get to Know the New Standard for High-Visibility Safety Apparel"
Summary: The new ANS/ISEA 107-2004 Standard for High-Visibility Safety Apparel and Headwear expands on the previous 1999 version by providing users with documentation that a garment meets all of requirements of the standards. The standard establishes three performance classes for high-visibility safety apparel based on the wearer's activities (s discussed.
Source: Occupational Hazards
Date: Apr 2005
Page: 48

Safety Equipment Certification
Title: "How Safety Equipment Standards Are Used in Certification of Products"
Summary: The system of self-certification conducted by US manufacturers for products is discussed.
Source: Occupational Hazards
Date: Apr 2005
Page: 1

Safety Incentives
Title: "Success Dispels Skepticism for Companies with Incentives Programs"
Summary: Several companies that have been able to apply seven fundamental precepts of good incentive programs within their comprehensive safety programs discuss their successes. Incident rates and lost-time injuries have dramatically decreased in these companies.
Source: Occupational Hazards
http://www.occupationalhazards.com/articles/index.php?id=13225
Date: April 2005
Page: 27

Safety Training
Title: "Preaching or Teaching: The Use of Narrative in Safety Training"
Summary: Narrative-storytelling-can be an effective way to impart useful safety and health information to employees without insulting them or putting them to sleep.
Source: Occupational Hazards
http://www.occupationalhazards.com/articles/13226
Date: Apr 2005
Page: 19

Heat Stress and Dehydration
Title: "Clear Facts on Water"
Summary: Humans depend heavily on water: Approximately 75 percent of the human body is made up of fluid. A loss of two quarts of fluid, or 2.5 percent of body weight, decreases efficiency by 25 percent. A loss of fluid equal to 15 percent of body weight is usually fatal. In desert terrain, approximately 9 quarts of water per Soldier, per day, is needed. When Soldiers are active, leaders must ensure each Soldier drinks 2 quarts of water per hour. Soldiers should drink more water as physical activity increases. In very hot conditions, it's better to drink smaller amounts of water more often than to drink large amounts occasionally. Drinking a lot of water at one time can cause excessive sweating and heat cramps.

One of the keys to combating heat injury such as heat stroke is adequate hydration. Although hydration receives a lot of publicity each summer, on average 400 people die per year in the United States from heat stroke. Soldiers in the scorching deserts of Iraq or Afghanistan are at even greater risk for heat injury and must keep the symptoms of heat exhaustion—which leads to heat stroke—in mind during the hot summer months. These symptoms include dizziness or fainting; heavy sweating; muscle cramps; cold or clammy skin; and headaches. Heat stroke produces symptoms that include rapid heartbeat; nausea; confusion or delirium; warm, dry skin (because the body is no longer able to sweat); fever of greater than 104 degrees; severe headaches; seizure or muscle twitching; and unconsciousness that can lead to death. Any Soldier experiencing these symptoms must seek medical attention immediately. For more information on heat injury, visit http://www.webmd.com
Source: Countermeasures
http://crc.army.mil/MediaAndPubs/magazines/countermeasure/2005_issues/cmmay05.pdf
Date: May 2005
Page: 11

Safety Education
Title: "OSHA Alliance Develops Educational Information"
Summary: Good workplace safety and health practices are good business—that's the emphasis of a new series of case studies that are a product of OSHA's alliance with Abbott. Through the alliance, signed in 2003, OSHA and Abbott worked with the Georgetown University McDonough School of Business to develop case studies that communicate the business value and competitive advantages of an effective safety and health program that can be incorporated into business school and executive education curricula. "These case studies offer useful information and demonstrate the correlation between safety and health excellence and business excellence," says Acting OSHA Administrator Jonathan Snare. "They provide practical examples of how this correlation can protect worker safety and health, improve employee moral, and increase quality, efficiency and profitability." The case studies focus on various industries and safety and health issues.

One case study describes how Blue Cross Blue Shield of Rhode Island was able to reduce musculoskeletal-disorder-related workers' compensation cases with lost workdays by implementing a new ergonomics program and increasing workstation evaluations. A second case study discusses the reduced injury rates and workers' compensation claims experienced at two nursing home facilities that implemented no-lift programs. Several of the case studies focus on Abbott operations, including general safety and health in manufacturing plants, fleet safety, ergonomics and occupational exposure limits. The case studies are available on OSHA's alliance program website and are available for use in business and other training curricula that address management skills and occupational safety and health issues.
Source: http://www.osha.gov

INDUSTRIAL HYGIENE PROFESSIONAL NEWS

American Board of Industrial Hygiene (ABIH)
Title: "Board Member Recruitment"
Summary: ABIH is soliciting members who would like to serve on the Board. They are looking to maintain a diverse mix of individuals to access a variety of knowledge, experience and skills. Demographic factors considered include geographic location, type of employer, education, year certified, type of work experience, administrative skills, accomplishments, etc. The basic qualifications that apply to all Board members are a commitment to the industrial hygiene profession and a willingness to serve a four-year term of office. Each ABIH Director is expected to participate fully at Board meetings and contribute through Board Committees and Special Assignments. There are three Board meetings per year. Meetings are usually held on a weekend to avoid conflicting with work. However, there may be some travel time on a Friday and/or Monday. Expenses related to Board travel are covered by ABIH. Because of the nature of the Board's work, Directors will be expected to sign a Confidentiality/Conflict of interest statement.

Nomination forms are available on the ABIH Web Site.

July 22, 2005 is the deadline for qualified and interested candidates to submit an application.
Source: http://abih.org/

American Industrial Hygiene Association (AIHA)
Title: "2005 Board of Director Announced"
Summary: The 2005 Board of Directors results are in:

- Vice President: Don Hart
- Treasurer-Elect: Dave Gioiello
- Directors: Mike Brandt, Christine Corrigan, and Neil Zimmerman

The President Elect will be announced at the AIHCE in Anaheim, 21-26 May 2005
Source: http://aiha.org

American Conference of Governmental Industrial Hygienists (ACGIH)
Title: "2005 ACGIH® Awards Recipients Honored at AIHce"
Summary: ACGIH® will honor its Awards recipients at the American Industrial Hygiene Conference an Exposition (AIHce) held May 22-26, 2005 in Anaheim, California. Each year, ACGIH® honors individuals and/or groups who have made significant contributions to the profession through their leadership and dedication.
Source: Source: Today (ACGIH®) Fee-based Membership is required to enter website
http://www.acgih.org/members/only/today/vol3no1.htm
Date: Winter 2005 Issue
Page: 5

American Conference of Governmental Industrial Hygienists (ACGIH)
Title: "Judge Dismisses Three Out of Four Counts in IBSA Suit Against ACGIH®"
Summary: In November of 2004 ACGIH® was named as a defendant in lawsuits filed in the United States District Court in Macon, Georgia by the International Brominated Solvents Association (IBSA) and other plaintiffs. The plaintiffs sought to enjoin ACGIH® from proposing, adopting, or publishing TLVs for 1-Bromopropane, copper, silica and diesel particulate matter. On March 11, 2005, Judge Duross Fitzpatrick issued a 39-page decision granting the motion to dismiss on three of the four counts against ACGIH®. This is viewed as a major victory by the ACGIH®.
Source: Today (ACGIH®) Fee-based Membership is required to enter website
http://www.acgih.org/members/only/today/vol3no1.htm
Date: Winter 2005 Issue
Page: 1

American National Standards Institute (ANSI)
Title: "Solicits Participation on New Technical Advisory Group in the Area of Nanotechnology, Approval of ISO Technical Committee is Imminent"
Summary: The American National Standards Institute (ANSI) recently submitted an application for accreditation for a proposed U.S. Technical Advisory Group (TAG) to the International Organization for Standardization's (ISO) new Technical Committee (TC) in Nanotechnologies, and for approval as the U.S. TAG Administrator. ANSI is soliciting participation for this new TAG activity. The ISO Technical Committee, TC 229 - Nanotechnologies, is expected to be officially approved later this month by the ISO Technical Management Board.

To serve as a member of an ANSI-accredited U.S. TAG to ISO, applicants must satisfy the definition of "U.S. National Interested Party," which states that one of the following entities must be directly and materially affected by the relevant standards activity:

- an individual representing a corporation or an organization domiciled in the U.S. (including U.S. branch offices of foreign companies authorized to do business in one or more states as defined by the relevant State's Corporation law within the U.S.);
- an individual representing a U.S. Federal, state or local government entity; or
- a U.S. citizen or permanent resident.

It is expected that the first meeting of TC 229 is likely to be held in the fall of 2005; a meeting of the U.S. TAG is expected to take place in July 2005 at a time and place to be determined. Additional information will be provided to all those who notify ANSI that they are interested in participating on the U.S. TAG.
Interested parties that would like to join the TAG, obtain additional information, or offer comments are advised to contact Heather Benko, standards administrator, procedures and standards administration, at hbenko@ansi.org, 212.642.4912 (tel); or 212.840.2298.
Source: IHS, Inc. http://engineers.ihs.com/news-05Q2/ansi-nanotechnology-technical-committee.jsp

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

Training Grants
Title: "Proposed OSHA Budget for FY 2006 Eliminates Training Grant Program"
Summary: Acting Assistant Secretary Jonathan Snare said OSHA's $10 million training grant would be eliminated under the President Bush's budget request for OSHA. Assistant Secretary Snare said professional training for compliance personnel and others with related workplace safety and health responsibilities is conducted at the OSHA training institute, and further training is provided to the public by education centers selected and sanctioned by the Institute.
Source: Occupational Hazards
Date: Apr 2005
Page: 50

Political Appointment
Title: "Nominee - Assistant Secretary of Labor for OSHA"
Summary: Occupational health and safety organizations, labor organizations and employers are still awaiting word of a possible nominee to serve as Assistant Secretary of Labor for OSHA. With the resignation of John Henshaw, John Snare has been named Acting Assistant Secretary until a permanent replacement is nominated and confirmed.
Source: AIHA Web Site

Radiation Exposures
Title: "OSHA Wants Data on Ionizing Radiation Exposures"
Summary: OSHA published a request for information yesterday on ionizing radiation controls and exposures experienced by workers in the private sector, and specifically from sources and activities including X-ray equipment and radiotherapy, accelerators, electron microscopes, precision measurement and nondestructive testing, and the disposal and use of technologically enhanced naturally occurring radioactive materials (TENORM), such as reused concrete aggregate.

The agency asked for comments by Aug. 1. Ionizing radiation has been used in workplace since 1896, but

its use “has grown significantly in recent years,” OSHA said “For example, the use of X-ray equipment to inspect luggage, packages, and other items has become very widespread. Currently, ionizing radiation is also used to neutralize harmful biological agents, including anthrax, as well as microorganisms in certain food.”

OSHA’s existing standard on ionizing radiation was adopted in 1971, and it uses the radioactive materials exposure limits that the Atomic Energy Commission adopted in 1969. The Nuclear Regulatory Commission has revised these standards several times in the interim, OSHA said. Its request lists 55 questions covering medical surveillance, training, PPE and many other issues.
Source: OSHA Web Site

INDUSTRIAL HYGIENE LINKS

http://www.osha.gov
The Occupational Safety and Health Administration (OSHA) is a Federal agency under the Department of Labor which sets and enforces occupational health and safety regulations, such as the Permissible Exposure Limits (PELs). OSHA’s mission is also to provide training, outreach and education; establish partnerships’ and encourage continual improvement in workplace safety and health.

http://www.cdc.gov/niosh/homepage.html
The National Institute for Occupational Safety and Health (NIOSH) is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services.

http://www.aiha.org/
The American Industrial Hygiene Association (AIHA) is a nonprofit organization with more than 75 local sections. AIHA’s 12,000 members are highly educated professionals; 96 percent are college graduates, 61 percent hold master’s degrees, and 6 percent possess doctoral degrees. AIHA is one of the largest international associations serving the needs of occupational and environmental health professionals practicing industrial hygiene in industry, government, labor, academic institutions, and independent organizations.

http://www.acgih.org/home.htm
The American Conference of Governmental Industrial Hygienists (ACGIH®), has been considered a well-respected organization by individuals in the industrial hygiene and occupational health and safety industry f or over 65 years. Undoubtedly the best known of ACGIH®’s activities, the Threshold Limit Values for Chemical Substances (TLV®) Book, list 642 chemical substances and physical agents, as well as 38 Biological Exposure Indices for selected chemicals.

http://www.abih.org/
The American Board of Industrial Hygiene (ABIH®), a not-for-profit corporation, was organized to improve the practice and educational standards of the profession of industrial hygiene. The activities presently engaged in for carrying out this purpose are:

1. offering certification examinations to industrial hygienists with the required educational background and professional industrial hygiene experience;
2. acknowledging individuals who successfully complete the examination by issuing a certificate;
3. requiring Diplomats to maintain their certification by submitting evidence of continued professional development; and
4. maintaining records and publishing a roster of certificate holders for the profession and the public.

http://www.iaqa.org/
The Indoor Air Quality Association (IAQA) was established in 1995 to promote uniform standards, procedures and protocols in the Indoor Air Quality industry. Since its inception, IAQA has become a leader in training and education for IAQ practitioners. The association is committed to education and research, and serves as a forum for the exchange of ideas within the emerging IAQ field.

ARMY-RELATED INFORMATION

https://www.us.army.mil/suite/login/welcome.html
The Army Portal, Army Knowledge Online (AKO), is a primary component of The Army Knowledge Management (AKM) strategy and The Army Transformation. As the single point of entry into a robust and scalable knowledge management system, AKO is strategically changing the way The Army does business. By enabling greater knowledge sharing among Army communities, AKM fosters improved decision dominance by commanders and business stewards in the battlespace, organizations, and Army's mission processes.

https://crc.army.mil/home/
The United States Army Combat Readiness Center (CRC) is the center of gravity where all loss-related areas overlap. It is leading edge, proactive, and focused on the Soldier through investigation and predictive analysis. The raises the level of awareness for the Soldier to help him/her better manage risk and improve combat readiness.

https://www.denix.osd.mil/denix/denix.html
The Defense Environmental Network & Information Exchange (DENIX) is the central platform and information clearinghouse for environment, safety and occupational health (ESOH) news, information, policy, and guidance. Serving the worldwide greater Department of Defense (DoD) community, DENIX offers ESOH professionals a vast document library, a gateway to web-based environmental compliance tools, an interactive workgroup environment, a variety of groupware tools and an active membership community numbering thousands. DENIX provides ESOH professionals an up-to-date, multi-functional resource to assist in preserving and protecting the natural environment, achieving greater energy efficiency, providing a safer and healthier work environment and meeting readiness and compliance needs of Congressional and DoD ESOH requirements.